



PATENT SPECIFICATION

640.185

Date of filing Complete Specification: Aug. 21, 1948.

Application Date: Oct. 29, 1947.

No. 28811/47.

Complete Specification Published: July 12, 1950.

Index at acceptance:—Class 30, C1b.

PROVISIONAL SPECIFICATION

ERRATA

SPECIFICATION No. 640,185.

Page 3, line 8, for "It" read "I"

Page 3, line 24, after "it" insert "to be"

Page 3, line 25, for "uint" read "unit"

Page 3, line 99, after "as" insert "are"

THE PATENT OFFICE,
11th September, 1950.

- 10 conveyed away or re-circulated.
- The object of the present invention is to provide for shaving, means such that the liquid referred to in my said prior Patent i.e. water or oil, or oil and water, and/or soap and water, liquid soap, or the like, is held or maintained on the face during a shaving operation and, although static during shaving (in contra-distinction to being conveyed away), may be permitted 20 or ensured movement within a restricted space or area. To thoroughly soften the hairs or penetrate the face oils, or remove the impurities lying on the skin, the liquid could be agitated or made to move 25 within a restricted space or volume and although this is not essential to the success of the operation, such methods may help to quicken same. By way of example the liquid may be supplied to a container formed or provided within the razor and which container is totally enclosed except for an orifice situated at the razor's edge or in proximity with the blade.
- 30 Provision may be made for the liquid to escape from the face and back to supply when the razor is removed from the skin, or the liquid can be shut off from the face by means of a movable shutter or the like, at any desired time during 35 shaving, or mechanism can lift or cause the liquid to come to the face during the shaving operation.
- In one arrangement and mode of user,

the apparatus—leaving them in softened state. The pressure in the liquid will be removed after the razor is lifted or in its being lifted from the face, and the liquid allowed to return to original storage position. 65

Provision may be made for controlling at will the size of said razor orifice, so that only part of the blade will shave through the static or substantially static liquid on any desired part of the face, thus liquid loss will be avoided when the blade is passed over facial depressions—e.g., clefts in the middle of the upper lip and the chin. For example, when part of the razor leaves the face during the shaving operation, the liquid, or the bulk thereof, can be prevented from leakage by the operation of numerous trap-doors which spring into use individually or collectively whenever pressure is lightened or released from certain part of the face, or else lifted off the face entirely. The orifice gap can be made to again open at will whenever a full shaving cut is required. 70 75 80 85

Pressure on the liquid movement control will be eased when the razor is removed from the face to cut off supply, and this actuation may be effected by hand, or mechanically, and with manual or automatic control. 90 95

A section of the apparatus can be attached to or be a part of the shaving apparatus, so that it has only a small cut-



PATENT SPECIFICATION

640.185

Date of filing Complete Specification: Aug. 21, 1948.

Application Date: Oct. 29, 1947.

No. 28811/47.

Complete Specification Published: July 12, 1950.

Index at acceptance:—Class 30, C1b.

PROVISIONAL SPECIFICATION

New or Improved Apparatus for Shaving

I, JAMES NOEL-DAVIES (British Nationality), of Chirk Mills, Chirk, Wrexham, North Wales, do hereby declare the nature of this invention to be as follows:—

This invention relates to modifications of the apparatus for facilitating the operation of shaving as described in the Specification of my prior Patent 23222/45 (Serial No. 597,918), and which comprises means whereby a stream of liquid is discharged on to the skin in the path of the razor blade, and also means whereby such liquid, or the bulk thereof, is conveyed away or re-circulated.

The object of the present invention is to provide for shaving, means such that the liquid referred to in my said prior Patent i.e. water or oil, or oil and water, and/or soap and water, liquid soap, or the like, is held or maintained on the face during a shaving operation and, although static during shaving (in contra-distinction to being conveyed away), may be permitted or ensured movement within a restricted space or area. To thoroughly soften the hairs or penetrate the face oils, or remove the impurities lying on the skin, the liquid could be agitated or made to move within a restricted space or volume and although this is not essential to the success of the operation, such methods may help to quicken same. By way of example the liquid may be supplied to a container formed or provided within the razor and which container is totally enclosed except for an orifice situated at the razor's edge or in proximity with the blade.

Provision may be made for the liquid to escape from the face and back to supply when the razor is removed from the skin, or the liquid can be shut off from the face by means of a movable shutter or the like, at any desired time during shaving, or mechanism can lift or cause the liquid to come to the face during the shaving operation.

In one arrangement and mode of user,

when the razor is placed in shaving position on the face and a slight pressure is exerted thereon, e.g. by a piston or by pressure exerted on the liquid by any means, for example, compressed air, its contained liquid is brought to said orifice to meet the face and blade, or on arrival within a short distance from the blade, but still against the face, so that when shaving is commenced, the blade may plough through the hairs and liquid either then or immediately after the fluid has soaked and/or passed through the hairs—e.g., caused by the movement of the apparatus—leaving them in softened state. The pressure in the liquid will be removed after the razor is lifted or in its being lifted from the face, and the liquid allowed to return to original storage position.

Provision may be made for controlling at will the size of said razor orifice, so that only part of the blade will shave through the static or substantially static liquid on any desired part of the face, thus liquid loss will be avoided when the blade is passed over facial depressions—e.g., clefts in the middle of the upper lip and the chin. For example, when part of the razor leaves the face during the shaving operation, the liquid, or the bulk thereof, can be prevented from leakage by the operation of numerous trap-doors which spring into use individually or collectively whenever pressure is lightened or released from certain part of the face, or else lifted off the face entirely. The orifice gap can be made to again open at will whenever a full shaving cut is required.

Pressure on the liquid movement control will be eased when the razor is removed from the face to cut off supply, and this actuation may be effected by hand, or mechanically, and with manual or automatic control.

A section of the apparatus can be attached to or be a part of the shaving apparatus, so that it has only a small cut-

ting blade edge or orifice gap that will shave certain parts of the face without the use of adjustable closing parts, and allow the main shaving operation to take place with the wide blade and orifice as already described.

Any method of construction may be used that will allow the liquid to properly wet the parts of the face to be shaved and which will also prevent the bulk of the liquid from leaking away out of the apparatus either during or after shaving: for example, a safety guard, or the like, which travels over the face adjacent the blade, could be arranged to drop, say by appropriate spring-loading, and instantly close the liquid supply orifice, or to cut off the liquid from said orifice when the razor is removed from the face: for example, the pressure released from the cutting edge of the blade or safety guard could control this movement.

The liquid may be induced to leave the face and return to storage by means of suction, e.g. an aspirator. Such means include the use of methods which allow the suction effect to take place whenever parts of the razor leave or are lifted from the face.

Another mode of embodiment provides for allowance of the liquid container to be moved forward to and away from the face: such liquid container can be in sections, so that some of the sections will be induced to leave parts of the facial depressions and others remain on the face parts being shaved. Such container could be made to scoop the liquid from a central supply onto and hold it against and/or away from the face.

These are by way of example only and any method that produces the same effect will do; for example, the casing side can revolve around a centre spindle, the casing sides having holes or orifices along its face which allow the liquid being carried to soak and soften the face hairs in passing. Or, again, moving scoops, or the like, can cause the liquid movement and/or turbulence and the direction or angle of mechanical movement is immaterial providing the desired results are achieved.

I have found that the methods hereinbefore described allow a shaving movement quite different from other methods of shaving, in so much as the shaving stroke can be long and rapid, and no fre-

quent lifts or short strokes are necessary, as with other types of shaving methods.

It is understood that with my apparatus the liquid does not merely trickle or damp, but wets and soaks the face and hairs the construction allowing the blade or parts of the razor to plough through the liquid.

Provision may be made to sieve the liquid so that it can be used over and over again.

Either hot or cold liquid may be used, and, if water is employed, soap or oil may be used with the water or applied to the face before the shaving operation, but I have attained excellent results with cold water alone. A cleansing agent, e.g. a detergent powder or grease remover can be added to the liquid. It is, of course, to be understood that my invention may be adapted for utilization in association with any suitable type of razor and blade, and include any practicable combination which will enable a person using same to shave up and down the face, sideways or in any other desired direction.

The amount of fluid to be held on the face during shaving operation can be decided by the area or size of the orifice gap and the quantity of the fluid to be used. Generally, I have found that a good volume of liquid gives a quick and close shave and that the face and hair should be thoroughly wetted rather than damped with a skim of liquid having no volume.

The orifice size can be adjusted until a quick and effortless shaving operation is achieved, and the orifice can be made to vary according to the facial parts of the face or particular needs of the person.

The liquid can be applied and/or maintained at the face by means of textile or like materials. Such absorbent materials can be either mechanically operated as for example by being dipped into the storage liquid and transferred to the face, or the absorbent material can be fixed to the apparatus, and the liquid supplied by pressure or like means i.e. gravity fed, causing the liquid to be held against the face in sufficiently large volumes as to give the correct conditions for successful operations.

Dated this 28th day of October, 1947.

JOHN HINDLEY WALKER,
125, High Holborn, London, W.C.1. and
139, Dale Street, Liverpool, 2,
Chartered Patent Agent.

COMPLETE SPECIFICATION

New or Improved Apparatus for Shaving

I, JAMES NOEL-DAVIES (British Nationality), of Chirk Mills, Chirk, Wrexham, North Wales, do hereby declare the nature of this invention and

in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement:—

- 5 This invention relates to improved shaving apparatus, more particularly apparatus for shaving the human face.

It have found that the operation of shaving is generally facilitated if liquid, e.g. plain water, is supplied to the hairs in the path of the razor blade immediately before the passage of such blade. It is however, necessary to avoid any undue escape of liquid which would wet the garments of the user, and such escape takes place most freely during the frequent intervals when the razor is wholly or partially out of contact with the skin, and one of the main objects of the present invention is to enable the supply of liquid to the skin to be controlled so as to prevent or diminish its escape during such intervals.

- I would have it understood that when I speak of a "razor unit" I mean apparatus which can be manipulated for shaving as an ordinary razor and which comprises in itself the necessary means of control of the liquid flow.

30 It will be seen that in the forms of razor units illustrated hereinafter, the unit can be manipulated for shaving, and any necessary controls actuated by one hand of the user.

- 35 My invention, therefore, in its broadest form consists of a razor unit as above defined provided with means for supplying liquid in substantial volume to the skin in the path of the blade and means for interrupting such supply automatically when the unit ceases to be in contact with the skin and for interrupting appropriate portions of the liquid supply when certain parts of the unit cease to be in contact with the skin.

My invention in this broad form would be applicable to apparatus, such as is described in my earlier Specification No. 597,918, by which a stream of liquid is discharged on to the skin in the path of the razor blade, and thereafter collected and conveyed away or recirculated. I have, however, found that shaving can also be rendered easier and more agreeable if a layer of liquid, which may be static and quasi-static in relation to the razor unit, is maintained on the skin in the path of the blade, and that by this means shaving can well be effected without the use of soap, or the like.

- 60 The forms of apparatus hereinafter more particularly described are designed for use with such static or quasi-static liquid, and the razor unit is provided with a reservoir capable of holding suffi-

cient liquid to enable an ordinary shaving operation to be carried out, so that the unit can be independent of any external source of supply during such operation.

The means for supplying the liquid and interrupting such supply are automatic accordingly as the unit, or certain parts thereof, is or are in or out of contact with the skin. Any convenient means may be used for regulating the supply for the purposes of my invention, e.g. shutters, plugs, or other closure components may be interposed to stop the flow of the liquid and intermediate containers may convey liquid from the reservoir to the face. Forms of apparatus embodying one or more of these means are hereinafter described. These descriptions are by way of example only, and clearly simplifications could be effected, though generally these would involve a sacrifice of some of the advantages of the apparatus shown.

There may be a certain amount of escape of liquid along the skin whilst the unit is in contact with the skin or immediately after the supply is cut off, but this is diminished by the fact that during an up-stroke of the razor the liquid on the skin is to a large extent carried along with the unit, and on a down-stroke the liquid tends to seep along the face of the unit, and may be collected, in part at least, by means such as hereinafter described, and if desired subsequently returned to the reservoir.

According to my experience, in order to obtain any marked improvement, the liquid layer should not be less than $\frac{1}{10}$ " deep, and generally the effect is improved if the depth is increased, say to $\frac{1}{8}$ " or more, and whilst I do not suggest that these are absolute limits they afford a guide to the design of apparatus according to my invention. The increase in liquid depth can obviously be extended to any practicable amount, always providing that there is adequate control of the liquid.

The experiments referred to in the last paragraph were made with cold water, but hot water or soapy liquids etcetera, could be obviously employed and no doubt the temperature and nature of the liquid would affect the depth of layer which would be desirable. Generally, where a greasy liquid is used less precautions are necessary against wastage.

In place of the liquid being supplied directly to the skin, the supply may be to a sponge or other suitable absorbent material by which it is brought in substantial volume into contact with the skin:

The breadth of the orifice gap by which

liquid is supplied to the skin should generally be from $1/8$ " to $1/2$ ". According to my experience the narrower gaps require a slower shaving stroke, though generally the leakage is less with a narrow gap. Means may be provided for varying the width of this orifice to suit the convenience of the user, e.g. sliding shutters.

- 10 Where a sponge or other absorbent material is used, it may be placed in the unit so as to be in contact with the skin during the operation of shaving, and the liquid supplied to such material so that it passes through it to the skin.

- 15 It will be clear that the form of the blade and its mode of attachment to the unit, the form or position of the handle the means for exerting pressure on the reservoir, and the position of the filling, opening, etcetera, may be varied without substantially affecting the apparatus.

- 20 I will further describe my invention with the aid of the accompanying sheets of explanatory drawings which illustrate, by way of examples only, several modes of embodying same.

In said drawings:—

- 25 Fig. 1 is a front elevation of apparatus according to my invention.

Fig. 2 is a part sectional elevation taken as on line A—A Fig. 1.

Fig. 3 is a perspective view with parts broken away for clarity, and

- 30 Fig. 4 is an enlarged fragment of Fig. 2.

- Figs. 5 to 8 inclusive, illustrate a modified form of the invention, Fig. 5 being a longitudinal section, Fig. 6 a section taken as on line A—A Fig. 5, Fig. 7 a fragment showing a tank holding means, and Fig. 8 a perspective view of the razor in inverted position.

- Referring first to the apparatus illustrated in Figs. 1, 2, 3 and 4, *a* denotes generally a shaving head adapted to receive a blade *b* of conventional type secured in position by means of a blade cap *c* and a screw *d*. Head *a* is internally divided, by interior walls *a*¹, *a*², *a*³, into three chambers *e*, *f* and *g*, upper chamber *e* whereof is adapted to receive, via a filler cap *e*¹, a supply of shaving liquid which, during a shaving operation, flows as required to chamber *f* through a port *f*¹ formed in dividing wall *a*¹.

- The outer wall of chamber *f* immediately below the cutting edge of blade *b* has formed therein a rectangular orifice *h* which extends across head *a* for approximately the full length of blade *b*, and said orifice *h* is adapted to be closed by a plurality of shutters, generally designated *j* which are configured as illustrated and individually pivoted on a

common rod *k* which spans chamber *f* and is secured at each end in the side walls thereof.

Each shutter has secured thereto a counterweight *j*¹, and said weights are arranged to normally maintain shutters *j* in position across, and so closing, orifice *h*.

Slidably but non-rotatably disposed within through apertures formed in that part of head *a* which bounds the upper edge of orifice *h* are a plurality of pins *m* one of which is provided in respect of each shutter *j*; and said pins project externally from head *a* adjacent the cutting edge of blade *b* to form, in effect, a guard member, and internally within chamber *f* to bear against shutters *j* a relatively short distance from their pivot points.

At the lower edge of orifice *h* there are provided rollers *n* upon which shutters *j* work in their movement to orifice-closing position.

Provision may also be made by means of ducts *l* for liquid from chamber *f* to be supplied directly to the surface of blade *b*, and it is arranged, by means of links *p* pivoted at *p*¹ and loosely jointed to pins *m*, for ducts *l* to be opened and closed, with shutters *j*, by closure members *p*² carried by links *p*.

It will be seen that if razor head *a* is held to the face in shaving position, the resultant slight pressure on pins *m* will cause same to be displaced inwardly, and consequently shutters *j* will be pivoted about rod *k* away from orifice *h* and against the resistance of counter-weights *j*¹ so that the fluid—supplied from chamber *e*—in chamber *f* will, in effect, be held in substantial volume against that area of the face immediately in the path of blade *b*; thus, when a shaving stroke is made, blade *b* passes through hairs, and over skin, which have been thoroughly wetted by the liquid in chamber *f*.

When a part, or parts, of the razor leaves the face during a shaving stroke, e.g. when passing over facial depressions, the resultant removal of pressure from those pins *m* not in contact with the face, permits the shutters *j* associated with said pins automatically to move to orifice closing position under the influence of counterweights *j*¹, and thus any serious loss of fluid from chamber *f* through that part or parts of orifice *h* not in actual contact with the face, is prevented.

As the supply of liquid to chamber *f* is not under pressure, any slight seepage of liquid therefrom which may occur, tends to cling to the razor parts and flows (if the razor is making a downward stroke) via an aperture *h*² situated below orifice *h*

into chamber *g* which acts as an overflow or trap tank.

The handle of the apparatus, designated *r* is of hollow construction and can be made to communicate with chamber *g* to increase the capacity thereof, and a plug cap *r'* screwed into the end of handle *r* facilitates drainage and cleaning of same.

10 Provided in dividing wall *a*² between chamber *e* and chamber *g* is a port *g'* adapted to be opened and closed by means of an actuating stud *g* at the rear of head *a*. Port *g'* enables overflow liquid in
15 chamber *g* to be returned, by simply inverting the apparatus, to chamber *e* for re-use. Said chamber *e* should be of such form and capacity as to ensure a sufficient supply of liquid to the skin in any position of the razor during shaving.

20 If desired a razor blade *b* and blade cap *c* held by screw *d* can be secured under the orifice *h* so as to allow an upward stroke movement of the razor; thus, any leakage liquid will pass over cap *c*, via an enlarged aperture *h*², into the waste tank *g*.

Referring now to the modification illustrated in Figs. 5 to 8, inclusive, *o*, *o*,
30 denote open fronted tanks fitted on levers *o'* pivoted at *o*² and balanced by counterweights *o*³, and held initially against the lower ends of feed tubes *p* adapted to supply said tanks *o* with liquid from a rubber sac *q*. Ball valves *p*¹ of said feed
35 feed tubes *p* are held in open position by catch pieces *o'* fitted on each of said tanks *o*, and thus, when pressure is exerted on sac *q* by lever *q'* the liquid is forced to
40 flow through aperture *q*² along the main supply tube *p*² and through feed tubes *p* via the open ball valves *p*¹ into tanks *o*. When pressure on lever *q'* is discontinued spring *q*³ returns same to normal
45 position.

To fill the razor with liquid, the mounting *r* is detached from head piece *s* and the liquid is introduced into sac *q* via aperture *q*² of mounting *r*.

50 In use, the razor being applied to the face, tanks *o* are moved, against the resistance of counterweights *o*³, into alignment with the shaving orifice *h* immediately below the cutting edge of
55 blade *b* by means of a setting bar *t* which is actuated by either of the levers *t'*. The facial pressure on pins *v* causes same to be displaced inwardly against the resistance of springs *c'* associated therewith,
60 and portions *u* of said springs engage the upper edges of tanks *o* to maintain same in operative position during a shaving stroke.

When a part or parts of the razor leaves
65 the face during a shaving stroke, e.g.

when passing over facial depressions, the resultant removal of pressure on pins *v* not in contact with the face permits the respective tanks *o* to move upward automatically under the influence of the counterweights *o*³, and thus substantial
70 loss of liquid from the tanks is prevented. Similarly, at the end of a shaving stroke, all of said tanks *o*, or those still in operative position, i.e. in alignment with
75 orifice *h* move upward and abut against the lower ends of feed tube *p* where they are in position to be refilled from sac *q* prior to the next shaving stroke.

Other blade clamping or holding means
80 may be utilized in place of the blade holding means shown; and in some instances, particularly in the case of inversion of a unit, spring controls in lieu of a counterweight could be used with advantage.

85 Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed, I declare that what I claim is:—

90 1. A razor unit provided with means for supplying liquid in substantial volume to the skin in the path of the blade, and means for interrupting such supply automatically when the unit ceases to be in contact with the skin, and for interrupting appropriate portions of the liquid supply when certain parts only of the unit cease to be in contact with the skin.

2. A razor unit as claimed in the preceding claim, having a reservoir capable
100 of containing sufficient liquid for a shaving operation so that the unit can be independent during such an operation of any external source of supply.

3. A razor unit as claimed in either of the preceding claims, so constructed that it will maintain a film of liquid on the skin not less than $\frac{1}{16}$ " deep during the passage of the blade or safety guard.
105

4. A razor unit as claimed in any one of the preceding claims, provided with a series of closure components each of which is controlled by an appropriately placed part of the unit so that when any
110 one of such parts ceases to be in contact with the skin the flow of liquid to the skin in proximity to such part is interrupted.

5. A razor unit as claimed in the preceding claim 4, in which the movable parts are pins projecting from the unit, which when pressed in by contact with the skin cause the closure components to move so as to permit liquid to flow on to
125 the skin.

6. A razor unit as claimed in any one of the preceding claims provided with a series of movable containers in the form of open-ended tanks which are adapted to
130

- move automatically under the influence of counterweights into a position in which they can draw liquid from a reservoir, and which tanks are movable manually into shaving position, that is, a position where they can discharge liquid on to the skin, and each of such containers is maintained in shaving position when a pin projecting from the unit is in contact with the skin and is moved out of shaving position when such pin ceases to be in contact with the skin so that the discharge of liquid from such container is interrupted.
- 15 7. A razor unit as claimed in any one of the preceding claims, provided with an opening to trap surplus liquid running along or around the face of the unit.
- 20 8. A razor unit as claimed in the preceding claim 7, provided with means for

returning the trapped liquid to the reservoir.

9. A razor unit as claimed in any one of the preceding claims, in which the liquid is supplied to a sponge or other suitable liquid-holding material in contact with the skin. 25

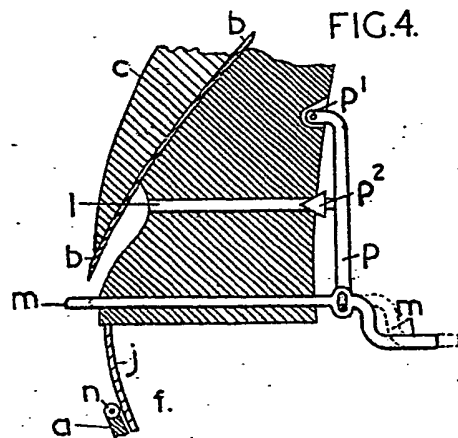
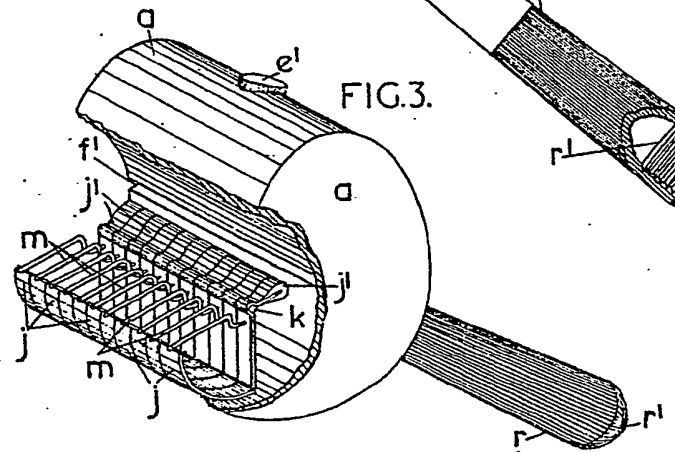
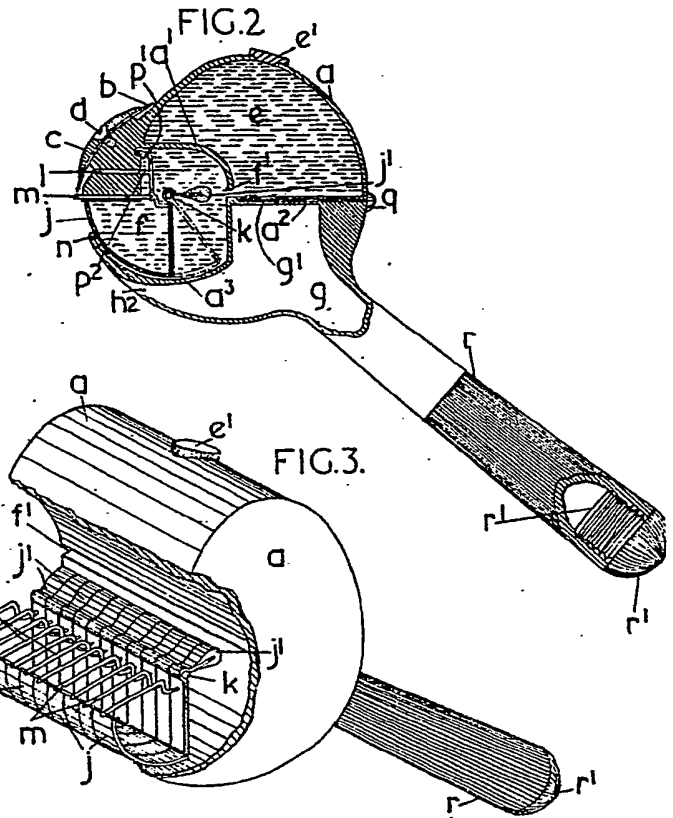
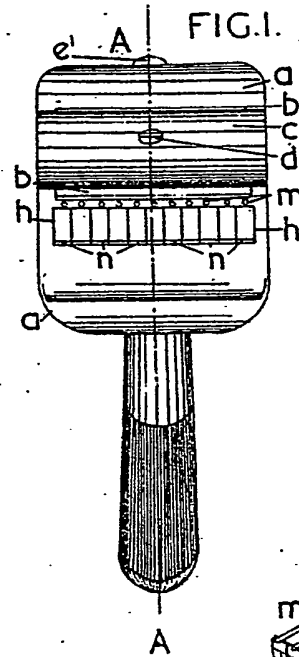
10. A razor unit substantially as herebefore described and illustrated in Figures 1 to 4, inclusive, of the accompanying drawings. 80

11. A razor unit substantially as herebefore described and illustrated in Figures 5 to 8, inclusive, of the accompanying drawings.

Dated this 20th day of August, 1948.

JOHN HINDLEY WALKER.

125, High Holborn, London, W.C.1, and
139, Dale Street, Liverpool, 2.
Chartered Patent Agent.



[This Drawing is a reproduction of the Original on a reduced scale.]

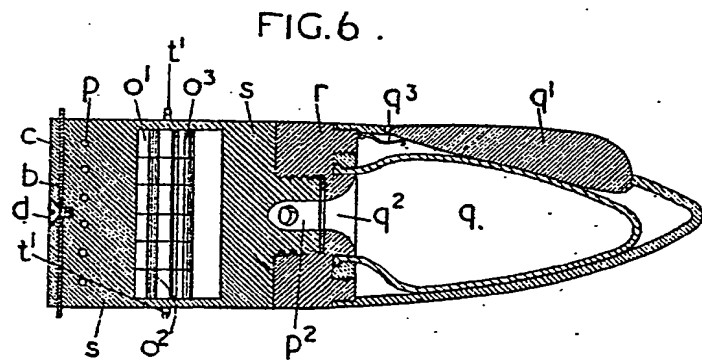
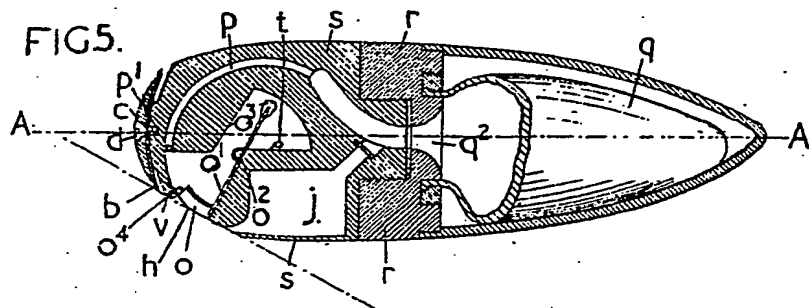


FIG.7.

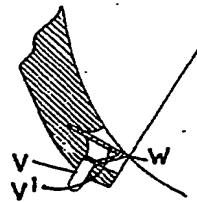
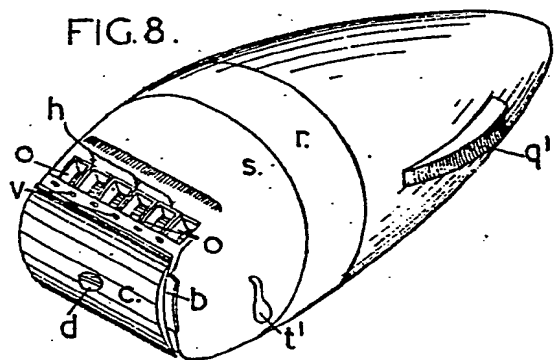


FIG.8.



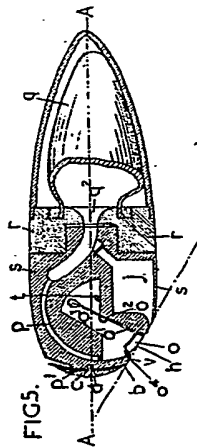
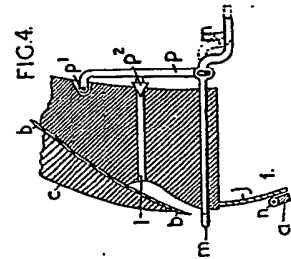
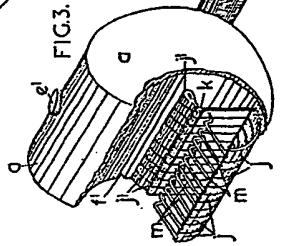
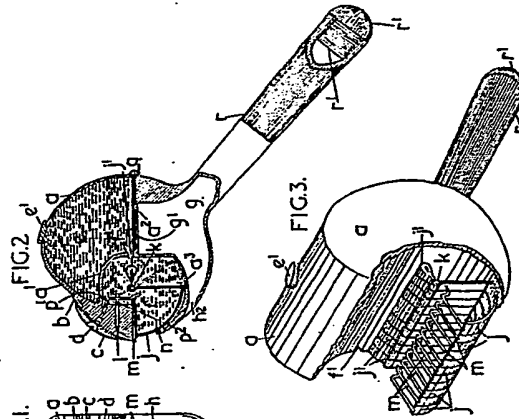
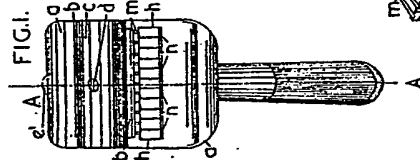


FIG. 6.

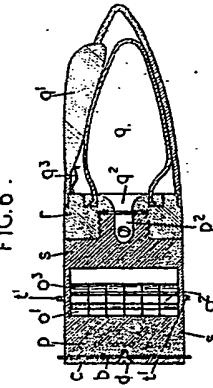


FIG. 7.

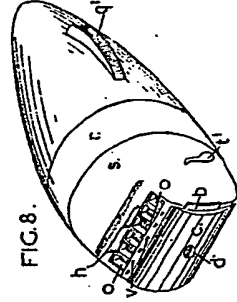


FIG. 8.

[This Drawing is a reproduction of the Original on a reduced scale]

**This Page is Inserted by IFW Indexing and Scanning
Operations and is not part of the Official Record**

BEST AVAILABLE IMAGES

Defective images within this document are accurate representations of the original documents submitted by the applicant.

Defects in the images include but are not limited to the items checked:

- ☐ **BLACK BORDERS**
- ☐ **IMAGE CUT OFF AT TOP, BOTTOM OR SIDES**
- ☐ **FADED TEXT OR DRAWING**
- ☐ **BLURRED OR ILLEGIBLE TEXT OR DRAWING**
- ☐ **SKEWED/SLANTED IMAGES**
- ☐ **COLOR OR BLACK AND WHITE PHOTOGRAPHS**
- ☐ **GRAY SCALE DOCUMENTS**
- ☐ **LINES OR MARKS ON ORIGINAL DOCUMENT**
- ☐ **REFERENCE(S) OR EXHIBIT(S) SUBMITTED ARE POOR QUALITY**
- ☐ **OTHER:** _____

IMAGES ARE BEST AVAILABLE COPY.

As rescanning these documents will not correct the image problems checked, please do not report these problems to the IFW Image Problem Mailbox.

THIS PAGE BLANK (USPTO)